REVISED
MAG 1999 SERIOUS AREA CARBON MONOXIDE PLAN
FOR THE
MARICOPA COUNTY NONATTAINMENT AREA

EXECUTIVE SUMMARY

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Within the Maricopa County nonattainment area, the National Ambient Air Quality Standards have not yet been attained for three pollutants: carbon monoxide, particulates, and ozone. The Maricopa Association of Governments was designated by the Governor of Arizona in 1978 and recertified by the Arizona Legislature in 1992 to serve as the Regional Air Quality Planning Agency to develop plans to address these pollution problems.

In accordance with the 1990 Clean Air Act Amendments, the Maricopa County nonattainment area was initially classified as Moderate for carbon monoxide pollution. However, on July 29, 1996, the nonattainment area was reclassified to Serious due to failure to attain the carbon monoxide standard by December 31, 1995. The Serious Area reclassification was effective on August 28, 1996.

The Clean Air Act requires that a Serious Area Carbon Monoxide Plan be submitted within eighteen months of the reclassification date. The plan is required to include a forecast of vehicle miles traveled, transportation control measures, contingency provisions, enhanced vehicle inspection and maintenance program, attainment demonstration and specific annual emission reductions, employer trip reduction program, and oxygenated gasoline. The attainment date for Serious Areas is December 31, 2000.

Carbon monoxide can be an air pollution problem during the winter months. It is a colorless, odorless, tasteless, and yet poisonous gas. Carbon monoxide is formed as a by-product of incomplete combustion, when fuel containing carbon is not completely converted to carbon dioxide. The National Ambient Air Quality Standard for Carbon Monoxide is 9 parts per million for an eight hour average.

Over time, significant progress has been made to reduce carbon monoxide pollution. In 1997, 1998, 1999 and 2000, there were no violations of the carbon monoxide standard. Generally, annual exceedance day totals and concentrations recorded over successive years are useful to gauge regional air quality trends and monitor progress toward attainment. Figure ES-1 summarizes the maximum carbon monoxide concentrations between 1983 and 1998.

Based upon the 1996 base year emissions inventory, the primary sources of carbon monoxide are: Onroad Mobile (automobiles and trucks) 53.9 percent; Nonroad Mobile (utility lawn and garden, construction, farm, and recreational equipment, aircraft, and locomotives), 43.5 percent; Area Sources (residential wood and industrial fuel combustion, on-site incineration, and open burning) 2 percent; and Point Sources (industrial, manufacturing and electrical power generation facilities) 0.6 percent. The sources are depicted in Figure ES-2.

Figure ES-1

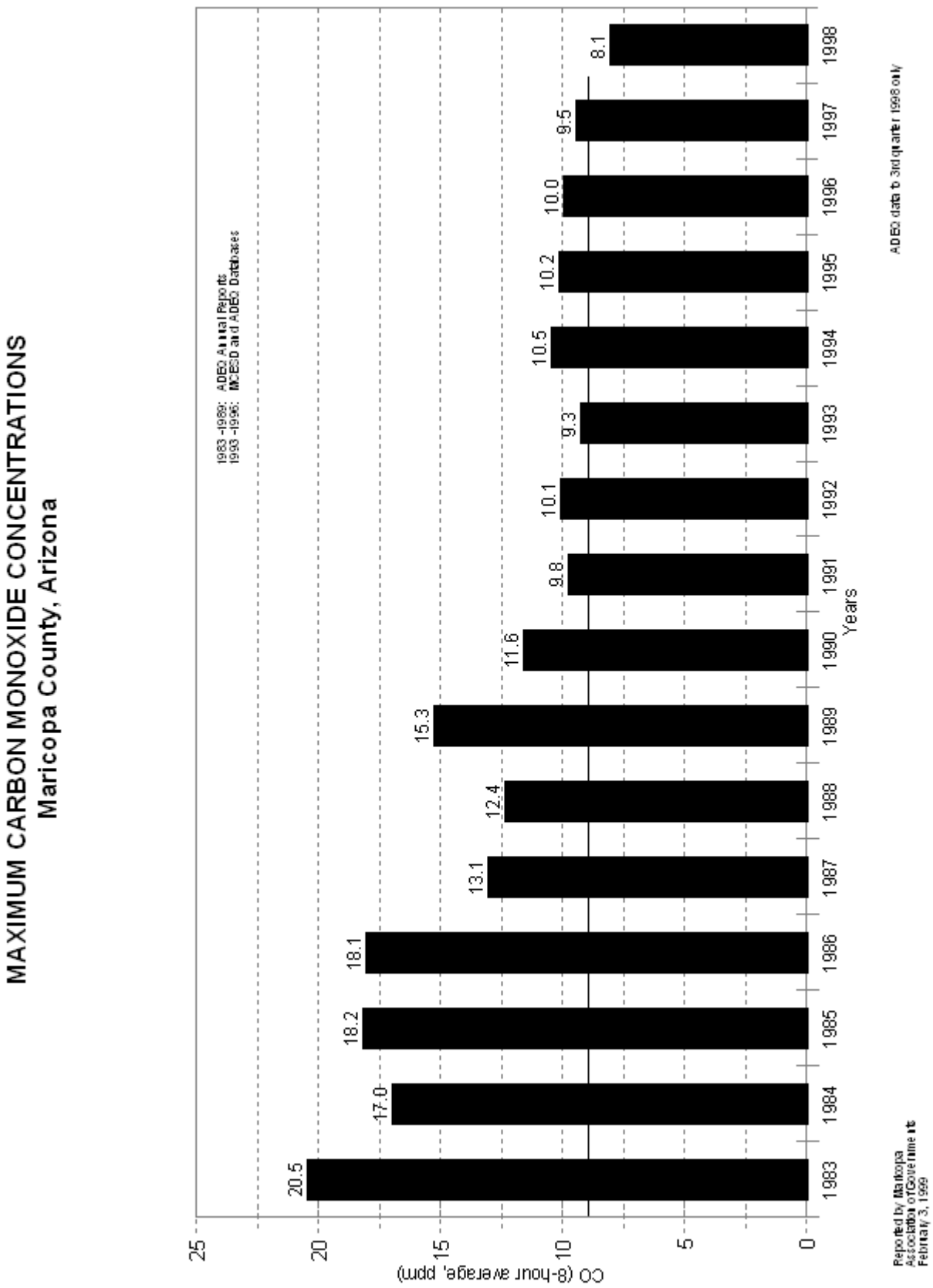
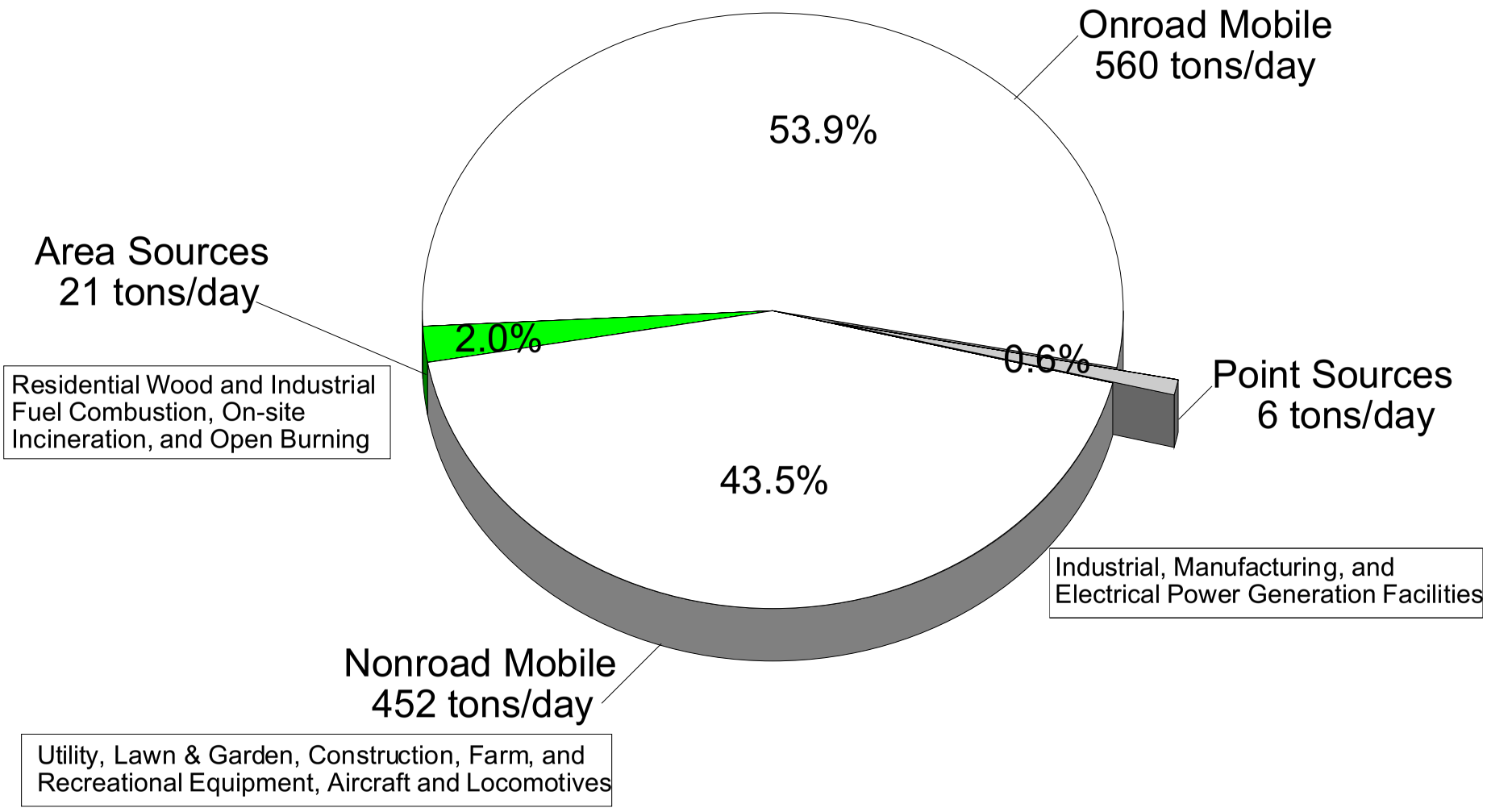

MAXIMUM CARBON MONOXIDE CONCENTRATIONS
Maricopa County, Arizona
1983 -1989: ADEQ Annual Reports
1990 -1996: MCESD and ADEQ Databases
CO (8-hour average, ppm)
Years
20.5
17.0
18.2
18.1
13.1
12.4
15.3
11.6
9.8
10.1
9.3
10.5
10.2
10.0
9.5
8.1
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
ADEQ data to 3rd quarter 1998 only
Reported by Maricopa Association of Governments
February 3, 1999

FIGURE ES-2

Sources of Carbon Monoxide Emissions

1996 Base Year Inventory (Average Daily CO Season Emissions)



Total = 1039 tons/day

According to the Clean Air Act, the Serious Area Carbon Monoxide Plan was due by February 28, 1998. The initial modeling for the plan included the final cutpoint credits approved by the Environmental Protection Agency (EPA) for the I/M 240 Vehicle Emissions Test. However, in October 1997, the Arizona Department of Environmental Quality raised concerns that the EPA credits for the I/M 240 Program may be too optimistic and result in unacceptable false failure rates.

Consequently, the credit for the I/M Program cutpoints was reduced and it became apparent that additional carbon monoxide control measures would be necessary. On October 23, 1997, EPA reviewed this situation and recommended that the Serious Area Carbon Monoxide Plan be submitted after measures have been adopted in the 1998 Legislative Session and all necessary technical analyses and administrative procedures have been completed. On December 3, 1997, the MAG Regional Council approved this approach.

During the next year and a half, a rigorous planning effort was conducted to resolve the cutpoint issues, obtain additional measures and prepare the Serious Area Carbon Monoxide Plan. On June 23, 1999, the MAG Regional Council adopted the MAG 1999 Serious Area Carbon Monoxide Plan. Collectively, the plan contained approximately 55 committed control measures from the State and local governments. On July 8, 1999, the Arizona Department of Environmental Quality submitted the Serious Area Carbon Monoxide Plan to the Environmental Protection Agency. A completeness finding was then issued by EPA on September 9, 1999.

Following the submission of the MAG 1999 Serious Area Carbon Monoxide Plan, the Arizona Legislature passed House Bill 2104 during the 2000 regular session, which repealed the Random Onroad Testing Requirements (Remote Sensing Program) from the Vehicle Emissions Inspection Program. House Bill 2104 also required the Director of the Arizona Department of Environmental Quality to evaluate the feasibility and effectiveness of methods to improve the monitoring of the performance of in-use emissions control systems using alternative technologies. The Environmental Protection Agency then indicated that the MAG 1999 Serious Area Carbon Monoxide Plan, including the attainment demonstration for December 2000, would need to be revised to reflect the repeal of the Remote Sensing Program. In response, the air quality modeling submitted to EPA in June 1999 has been revised accordingly.

Based upon the revised air quality modeling data, the goal for attaining the carbon monoxide standard is an 11 percent reduction in emissions by December 31, 2000. The modeling is based upon a December 16-17, 1994 design day.

In order to reduce carbon monoxide, the State and local governments committed to implement a wide variety of air quality measures. Key measures included in the plan are: California Air Resources Board (CARB) Phase 2 Reformulated Gasoline During the Winter Months; Phased-in Cutpoints for the I/M 240 Vehicle Emissions Test; Traffic Synchronization; Intelligent Transportation Systems; One Time Waiver from the Vehicle Emissions Test; Deferring Emissions Associated with Government Activities; and other Transportation Control Measures.

Collectively, the impact of the State and local government committed measures is an estimated 10.4 percent reduction in emissions by December 31, 2000. The predicted peak concentration with the committed measures is 8.97 parts per million (see Figure ES-3). Therefore, the revised air quality modeling analysis, reflecting the repeal of the Remote Sensing Program, demonstrates attainment of the carbon monoxide standard of 9 parts per million by the required date of December 31, 2000.

The Revised Serious Area Carbon Monoxide Plan also contains several contingency measures. The contingency measures include: Tougher Enforcement of Vehicle Registration; Catalytic Converter Replacement Program; Voluntary Lawn Mower Emissions Reduction Program; National Low Emission Vehicle Program; Clean Burning Fireplaces; Expansion of Area A Boundaries (for application of air quality measures); Gross Emitter Waiver Provision; and the Increased Waiver Repair Limit.

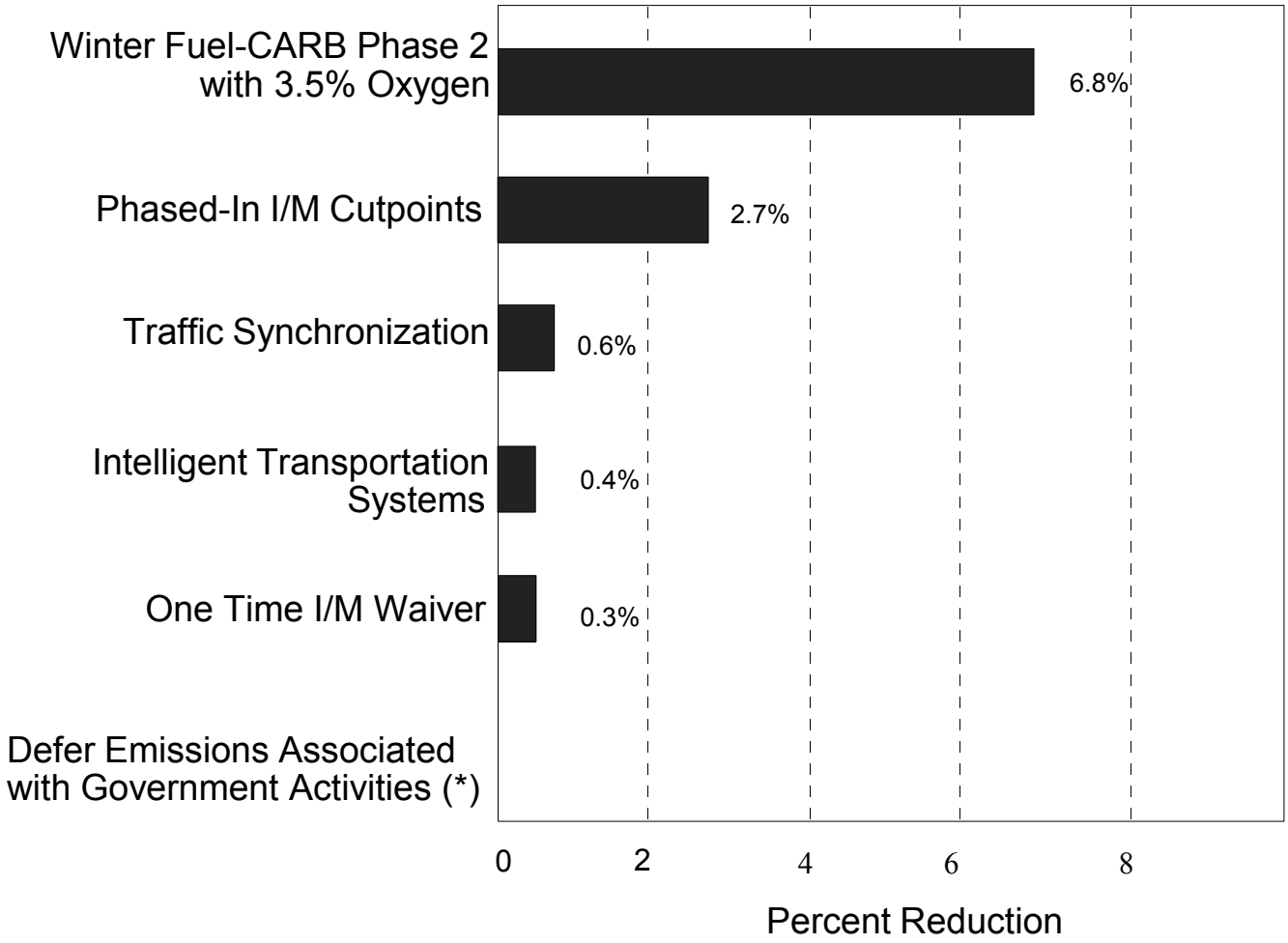
The impact of the above contingency measures is approximately a 1.6 percent reduction in emissions in 2000. Combined with the second year of the biennial inspection and maintenance program (2.5 percent), the collective impact of the contingency measures is 4.1 percent. This is sufficient to off-set one year's growth in vehicle miles of travel. The annual growth in vehicle miles of travel is 2.6 percent which results in a target emission reduction of 1.7 percent in 2000 (see Figure ES-4).

Previously, EPA has approved the carry over of the second year of a biennial inspection and maintenance program for use as a contingency measure. The benefits from the second year of this program will occur by December 2001. The numeric credit from the second year of this program is not necessary for the attainment demonstration.

Consequently, the Revised MAG 1999 Serious Area Carbon Monoxide Plan demonstrates attainment of the standard by the December 31, 2000 attainment date. The resulting 2000 Carbon Monoxide Attainment Emissions are depicted in Figure ES-5. For conformity analyses, the motor vehicle emissions budget is approximately 412.2 metric tons per day. It is important to note that this carbon monoxide emissions budget is intended to replace the emissions budget identified in the MAG 1999 Serious Area Carbon Monoxide Plan, June 1999 (411.6 metric tons/day).

FIGURE ES-3

2000 Carbon Monoxide Emission Reductions from Individual Committed Measures for Attainment Demonstration

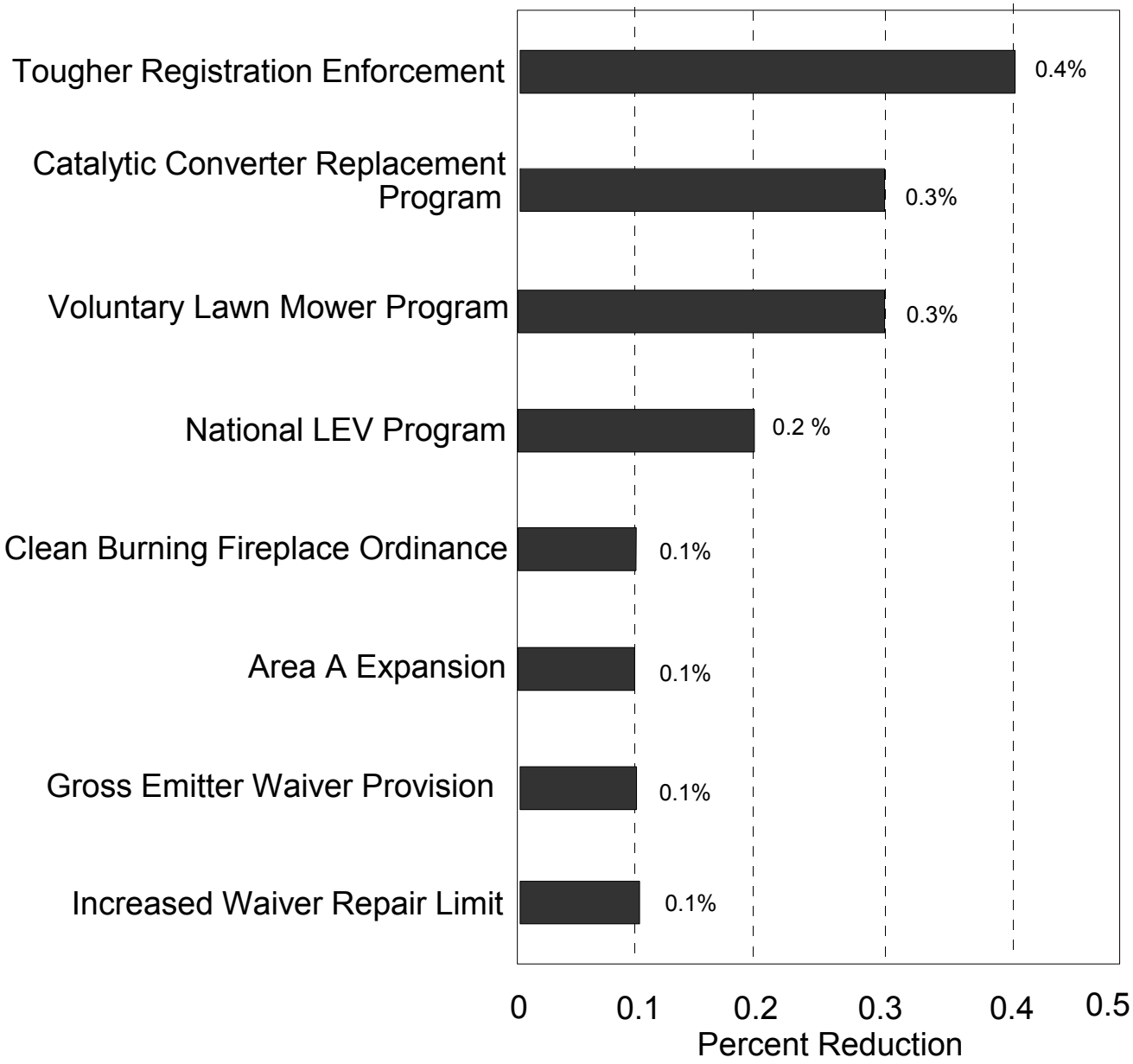


*This measure influences when emissions occur rather than their magnitude.
NOTE: Individual impacts of measures are not additive.

MODELING RESULTS	DECEMBER 2000
Estimated Target Emission Reduction	11%
Estimated Reduction from Measures	10.4%
National Carbon Monoxide Standard	9.0 ppm
Peak Concentration w/Measures	8.97 ppm

FIGURE ES-4

2000 Carbon Monoxide Emission Reductions from Individual Contingency Measures



MODELING RESULTS	DECEMBER 2000
Annual Growth in Vehicle Miles of Travel	2.6%
Target Emission Reduction for Contingency Measures	1.7%
Reduction from Contingency Measures	*4.1%

*1.6% (measures above) + 2.5% (second year of biennial I/M Program) = 4.1%

FIGURE ES-5

2000 Carbon Monoxide Attainment Emissions

(Metric Tons/Day)